

# Hydraulic Cylinders

## **ISO 6022 Standard**

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**BRANT**  
**HYDRAULICS**

**Parameter**
**Specification**
**Standard**

Style	ISO 6022, DIN 24 333, CETOP RP73H, BS 6331 Pt.III, AFNOR NF E48-025, VW 39D 921
Type	Flange
Rated Pressure	250 bar
Test Pressure	375 bar
Mounting Position	As desired
Construction	Head & cap bolted to heavy steel flanges

**Fluid**

Fluid Style	Mineral oil or other fluids on request
Fluid Viscosity	12 to 90 cSt
Filtration	Oil contamination NAS 1638 class 9 ~10 to be met with filter $\beta_{25} = 75$

**Dimension**

Piston Dimension	50	63	80	100	125	140	160	180	200	250	320
Rod Dimension	32	40	50	63	80	90	100	110	125	160	200
	36	45	56	70	90	100	110	125	140	180	220
Stroke tolerance	ISO 8135										

**Seal**

Seal Type	-20°C to +80°C for normal seals -20°C to +160°C for viton seals											
Max. Speed(m/s) for Normal Seals	0.5	0.4	0.25						0.2			
Max. Speed (m/s) for Viton Seals	1		0.7						0.5			

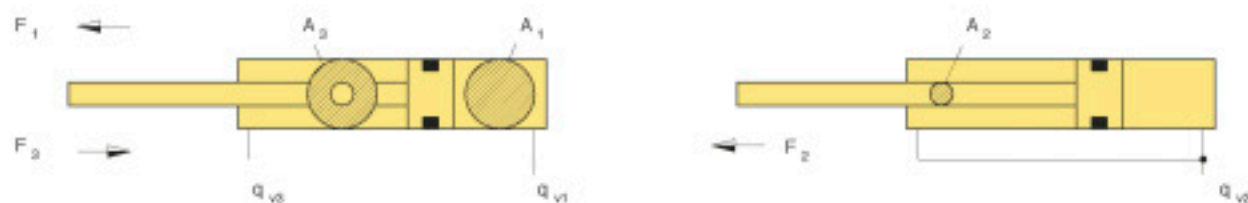
**Cushioning**

Optional Length(mm)	Both Ends										
	20	25	30	35	50	50	55	65	70	90	100

**Optional Features**

Air Bleeds	Available as option at both ends, air bleeds are recessed into the head cap and retained so they cannot be inadvertently removed.
Double Rod Cylinder	ISO 6022 series cylinders are available with the option of a double-ended piston rod. Please contact the factory for further details.
Position Measure System	Linear position transducers of various types may be fitted to ISO 6022 series cylinders. Please contact the factory for further details.
Position Proximity Switch	Non-contacting position switches are available for ISO 6022 series cylinders. Please contact the factory for further details.

Bore	Rod	Area ratio	Areas			Force at 250 bar <sup>1</sup>			Flow at 0,1 m/s <sup>2</sup>		
			Bore	Rod	Annulus	Push	Regen.	Pull	Out	Regen.	in
AL Ø mm	MM Ø mm	Ø A1/A3	A <sub>1</sub> cm <sup>2</sup>	A <sub>2</sub> cm <sup>2</sup>	A <sub>3</sub> cm <sup>2</sup>	F <sub>1</sub> kN	F <sub>2</sub> kN	F <sub>3</sub> kN	q <sub>v1</sub> l/min	q <sub>v2</sub> l/min	q <sub>v3</sub> l/min
50	32	1,69	19,63	8,04	11,59	49,07	20,1	28,97	11,8	4,8	6,9
	36	2,08		10,18	9,45		25,45	23,63		6,1	5,7
63	40	1,67	31,17	12,56	18,61	77,92	31,4	46,52	18,7	7,5	11,2
	45	2,04		15,90	15,27		39,75	38,17		9,5	9,2
80	50	1,64	50,26	19,63	30,63	125,65	49,07	76,57	30,2	11,8	18,4
	56	1,96		24,63	25,63		61,57	64,07		14,8	15,4
100	63	1,65	78,54	31,17	47,37	196,35	77,92	118,42	47,1	18,7	28,4
	70	1,96		38,48	40,06		96,2	100,15		23,1	24
125	80	1,69	122,72	50,26	72,46	306,8	125,65	181,15	73,63	30,2	43,5
	90	2,08		63,62	59,1		159,05	147,75		38,17	35,5
140	90	1,70	153,94	63,62	90,32	384,85	159,05	225,8	92,36	38,17	54,2
	100	2,04		78,54	75,4		196,35	188,5		47,12	45,2
160	100	1,64	201,06	78,54	122,52	502,65	196,35	306,3	120,6	47,12	73,5
	110	1,90		95,03	106		237,57	265		57	63,6
180	110	1,60	254,47	95,03	159,44	636,17	237,57	398,5	152,7	57	95,6
	125	1,93		122,72	131,75		306,8	329,37		73,6	79
200	125	1,64	314,16	122,72	191,44	785,4	306,8	478,6	188,5	73,6	114,9
	140	1,96		153,96	160,2		384,9	400,5		92,4	96,12
250	160	1,69	490,8	201,06	289,74	1227	502,65	474,3	294,5	120,6	173,8
	180	2,08		254,4	236,4		636	591		152,6	141,8
320	200	1,64	804,2	314,16	490,04	2010,5	785,4	1225,1	482,5	188,5	294
	220	1,90		380,1	424,1		950,25	1060,2		228,1	254,5


**Notes:**

- 1- Theoretical force (without consideration of efficiency).
- 2- Stroke velocity.

1 MPa = 10 bar  
1 kN = 102 kp

The permissible stroke length with a flexibly guided load and a 3.5 safety factor against buckling can be obtained from the appropriate table. With a deviating cylinder installation, the permissible stroke length has to be interpolated. Permissible stroke lengths for non-guided loads are available on request. The calculation for buckling are carried out as follows:

1. Calculation according to Euler  $F = \frac{\pi^2 \cdot E \cdot I}{v \cdot L_K^2}$  if  $\lambda > \lambda_g$
2. Calculation according to Tetmajer  $F = \frac{d^2 \cdot \pi (335 - 0.62 \cdot \lambda)}{4 \cdot v}$  if  $\lambda \leq \lambda_g$

Explanation:

E = Modulus of elasticity in  $N/mm^2 = 2.1 \times 10^5$  for steel

I = Moment of inertia in  $mm^4$  for a circular cross-section area =  $\frac{d^4 \cdot \pi}{64} = 0.0491 \cdot d^4$

v = 3.5 (safety factor)

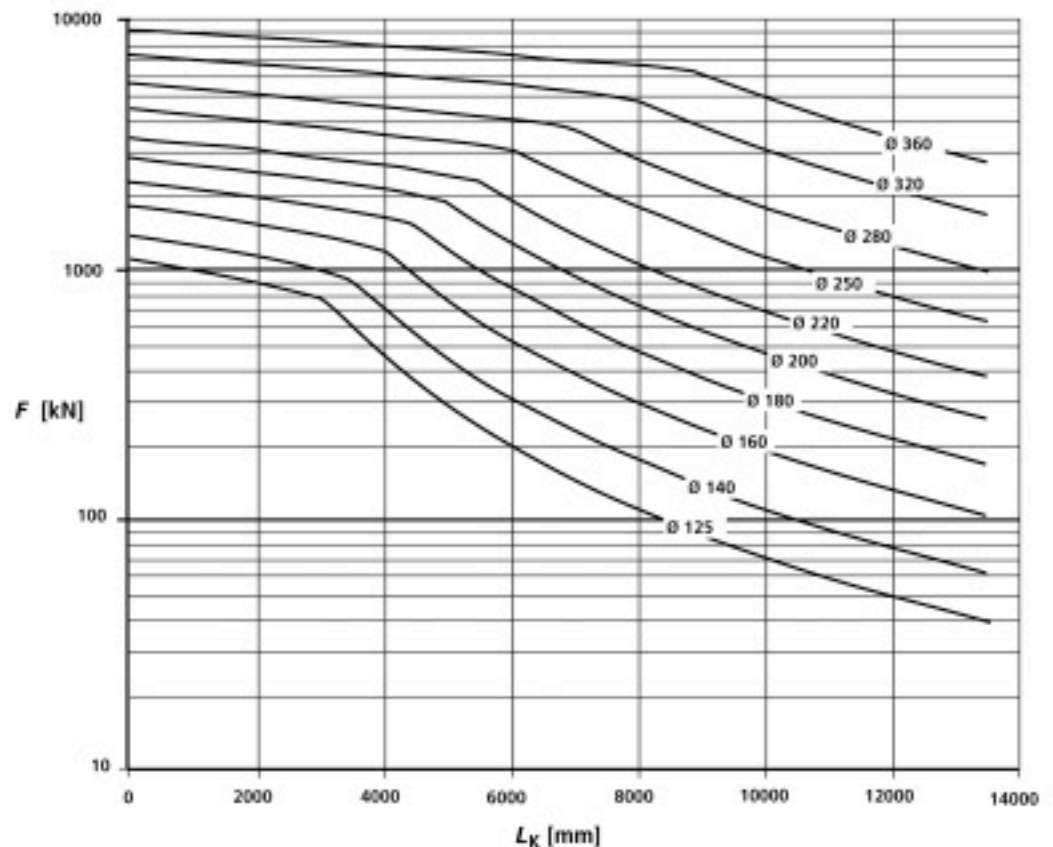
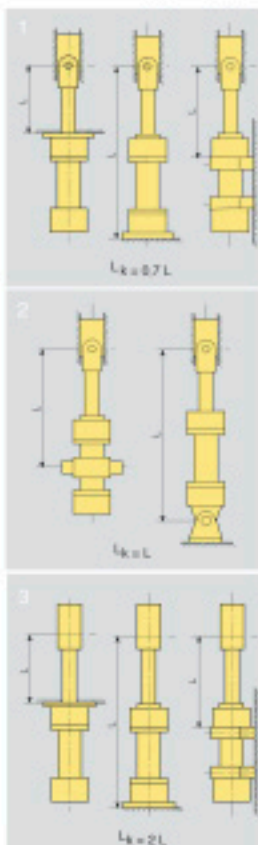
L<sub>K</sub> = Free buckling length in mm (dependent on the mounting style, see sketches A, B, C)

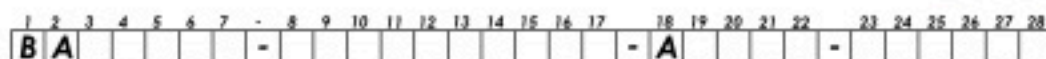
d = Piston rod Ø in mm

$\lambda$  = Slenderness ratio =  $\frac{4 \cdot L_K}{d}$        $\lambda_g = \pi \sqrt{\frac{E}{0.8 \cdot R_e}}$

R<sub>e</sub> = Yield strength of the piston rod material

Influence of the mounting type on the buckling length:





### Series

BA = ISO 6022

### Type

R1 = Differential cylinder

R2 = Double rod cylinder(3)(6)

### Mounting Styles

MP3 = Plain clevis at base

MP5 = Self-aligning clevis at base

MF3 = Round flange at head

MF4 = Round flange at base

MT4 = Trunnions (1)

MS2 = Foot mounting

### Piston Diameter

50 to 320 mm (See page 1)

### Piston rod Diameter

32 to 220 mm (See page 1)

### Stroke length in mm

### Design principle

A = Head and base flanged

### Component series

10 to 19 unchanged installation and connection dimensions

### Connection ports/version

B = Pipe thread to ISO 228/1

M = Metric ISO thread

F = Flange porting pattern to ISO 6162 Tab.1 (=SAE 3000 PSI) (4), (9)

D = Flange porting pattern to ISO 6162 Tab.2 (=SAE 6000 PSI) (5), (9)

K = Flange porting pattern to ISO 6164 Tab.1 (3), (9)

H = Flange porting pattern to ISO 6164 Tab.2 (9)

C = Pipe thread to ISO 228/1 with a ring flange that has a machined flat

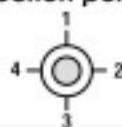
### Connection port/position at head and base

1 =

2 =

3 =

4 =



Viewed on the piston rod

### Piston rod version

C = Hard chromium plated

H = Hardened and hard chromium plated (1)

N = Nickel plated and hard chromium plated (2)

K = Ceramic coating (14)

### Option 2

B = Flange grease nipple

C = Analogue output 4-20 mA(13)

F = Analogue output 0-10 V(13)

D = Digital output SSI(13)

Y = Enter piston rod extension in clear text in mm(8)

W = Without option

### Option 1

A = Coupling, on both side

F = Guide rings(12)

E = Inductive proximity switch without plug-in connector  
Plug-in connector – separate order(3)

T = Pos. measuring system (magnetostrictive) without plug-in connector  
Plug-in connector – separate order(14)

W = Without option

### Seal version

**Suitable for mineral oil to DIN 51524 HL, HLP and HFA**

M = Standard seal system

T = Servo quality/reduced friction

A = Chevron seal kits

K = Standard seal system for Ceramic

**Suitable for phosphate ester HFD-R**

S = Servo quality/reduced friction

B = Chevron seal kits

C = Standard seal system for Ceramic

### End position cushioning

U = Without

D = Both sides, self-adjusting(3)

E = Both sides, adjustable

### Piston rod end

H = Thread for self-aligning clevis

F = With mounted self-aligning clevis

(1) = Only piston rod  $\varnothing$  32 to 110 mm

(2) = Only piston rod  $\varnothing$  32 to 140 mm

(3) = Only piston  $\varnothing$  50 to 200 mm

(4) = Only piston  $\varnothing$  63 to 200 mm

(5) = Only piston  $\varnothing$  250 to 320 mm

(6) = Only MF3; MT4; MS2

(7) = For the CG version only one self-aligning clevis is fitted

(8) = For the CG version only on one rod

(9) = Not possible for version MF4







(10) = The trunnion can be located as required. Dim. „XV“ must always be stated in clear text in mm in case of an order.







(11) = Standard for seal versions M, T, K, and piston  $\varnothing$  250 to 320 mm. Not possible for seal versions A, B

(12) = Only possible in conjunction with position measuring system „T“

(13) = Only possible with seal versions „C“

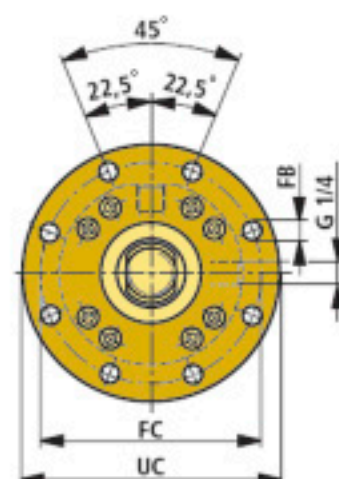
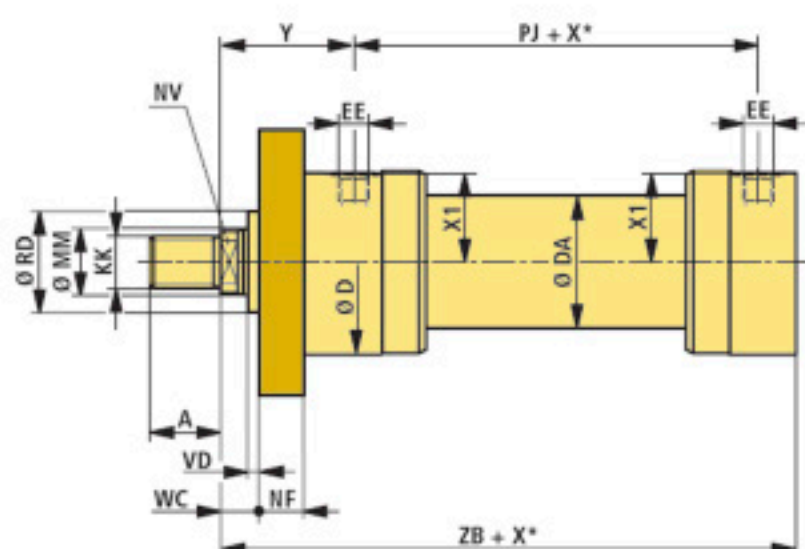
(14) = Seal versions A, B not possible. Piston rod versions „K“ and „H“ not possible. End position damping possible from piston rod  $\varnothing$  45 mm. CG version not possible

Bore Ø		50		63		80		100		125	
Rod Ø		32	36	40	45	50	56	63	70	80	90
	<b>MF3</b>	14,4	16	24	24	37	37	57	58	99	100
	<b>MF4</b>	14,4	16	24	24	37	37	57	58	99	100
	<b>MP3 MP5</b>	14	14	23	23	35	35	55	55	99	100
	<b>MS2</b>	14	15	22	22	35	36	55	56	96	97
	<b>MT4</b>	14	14	23	23	35	35	56	56	102	102
<b>Additional Weight per 100 mm stroke</b>		1,9	2,2	3,2	3,4	4,9	5,2	6,8	7,8	10,8	12,1
	Rod eye with spherical bearing	1,2		2,1		4,4		7,6		14,5	

Bore Ø		140		160		180		200		250	
Rod Ø		90	100	100	110	110	125	125	140	160	180
	<b>MF3</b>	148	149	191	192	271	272	344	346	641	642
	<b>MF4</b>	148	149	191	192	271	272	344	346	641	642
	<b>MP3 MP5</b>	149	150	195	196	273	274	363	365	692	694
	<b>MS2</b>	147	148	197	198	274	276	349	351	608	614
	<b>MT4</b>	154	155	200	201	278	279	356	358	680	681
<b>Additional Weight per 100 mm stroke</b>		13,4	14,8	17,4	19,2	21,2	24,3	25,3	28,6	34,2	38,8
	Rod eye with spherical bearing	17		28		32		43		80	

## MF3 Round front ISO 6022 flange mounting

Nominal pressure **250 bar**

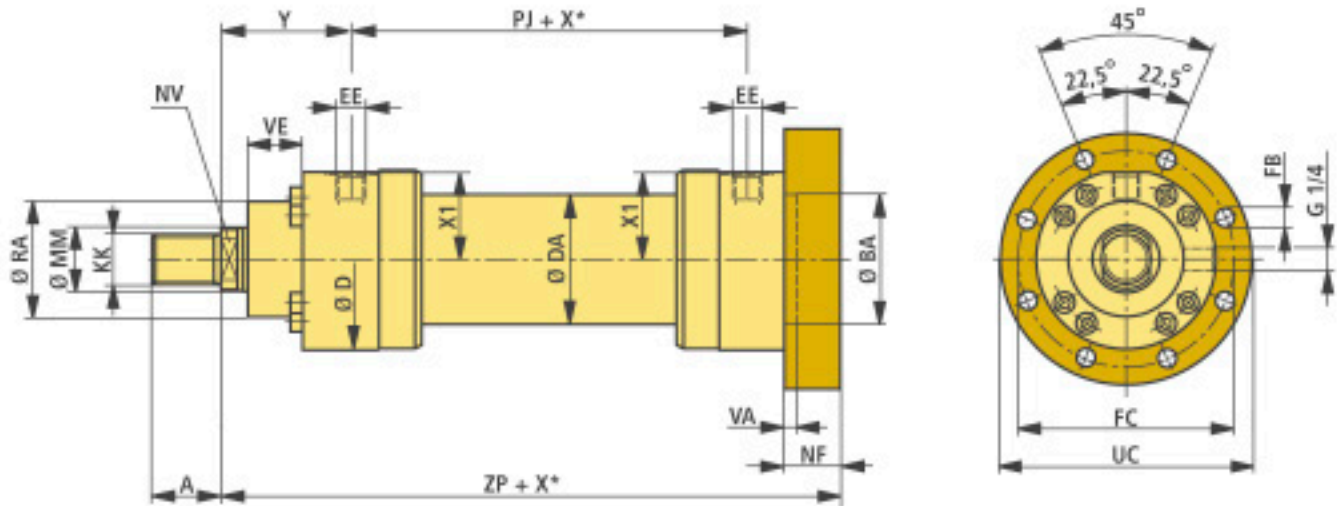


X\* : Stroke

Bore $\emptyset$	50		63		80		100		125		140		160		180		200		250		320	
	MM	32	36	40	45	50	56	63	70	80	90	90	100	100	110	110	125	125	140	160	180	200
A		36		45		56		63		85		90		95		105		112		125		160
D		102		120		145		170		206		226		265		292		306		412		500
DA		65		78		100		120		150		170		190		210		230		298,5		385
EE		1/2"G		3/4"G		3/4"G		1"G		1"G		1 1/4"G		1 1/4"G		1 1/4"G		1 1/4"G		1 1/2"G		2"G
FB <sup>(1)</sup>		8x13,5 $\emptyset$		8x13,5 $\emptyset$		8x17,5 $\emptyset$		8x22 $\emptyset$		8x22 $\emptyset$		8x26 $\emptyset$		8x26 $\emptyset$		8x33 $\emptyset$		8x33 $\emptyset$		8x39 $\emptyset$		8x45 $\emptyset$
FC <sup>(2)</sup>		132		150		180		212		250		280		315		350		385		475		600
KK		M 27x2		M 33x2		M 42x2		M 48x2		M 64x3		M 72x3		M 80x3		M 90x3		M 100x3		M 125x4		M 160x4
NF		25		28		32		36		40		40		45		50		56		63		80
NV		27   30		32   36		41   46		50   60		65   75		75   85		85   95		95   110		110   120		140   160		180   200
PJ		120		133		155		171		205		219		235		264		278		325		350
RD <sup>(3)</sup>		63		75		90		110		132		145		160		185		200		250		320
UC		155		175		210		250		290		325		360		405		440		540		675
VD		4		4		4		5		5		5		5		5		5		8		8
WC		22		25		28		32		36		36		40		45		45		50		56
Y		98		112		120		134		153		166		185		194		220		260		310
ZB		244		274		305		340		396		431		467		510		550		652		764

**MF4** | Round rear  
ISO 6022 | flange mounting

Nominal pressure **250 bar**



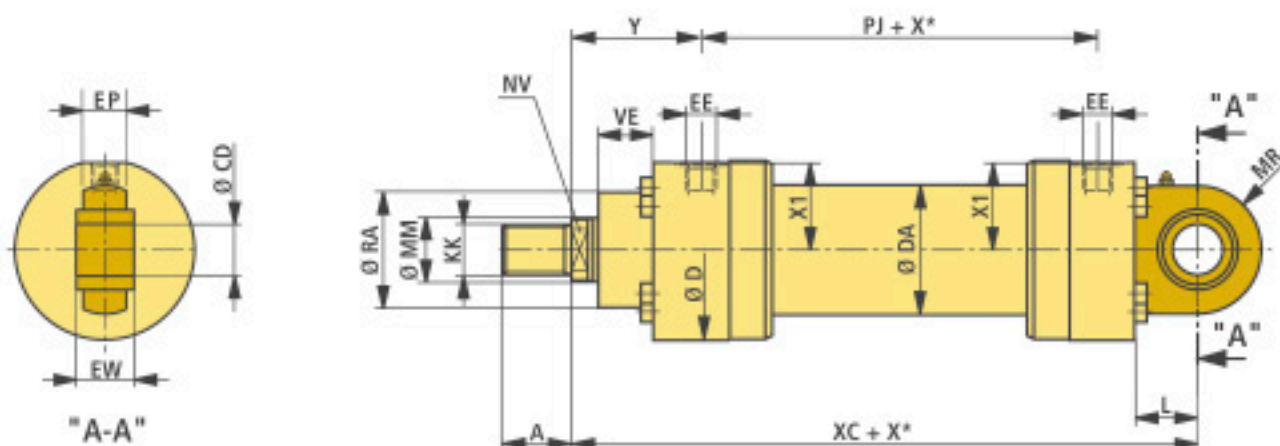
X\* : Stroke

Bore Ø	50		63		80		100		125		140		160		180		200		250		320	
	MM	32	36	40	45	50	56	63	70	80	90	90	100	100	110	110	125	125	140	160	180	200
A		36		45		56		63		85		90		95		105		112		125		160
BA <sub>HS</sub>		63		75		90		110		132		145		160		185		200		250		320
D		102		120		145		170		206		226		265		292		306		412		500
DA		65		78		100		120		150		170		190		210		230		298,5		385
EE		1/2"G		3/4"G		3/4"G		1"G		1"G		1 1/4"G		1 1/4"G		1 1/4"G		1 1/4"G		1 1/2"G		2"G
FB <sub>HS</sub>		8x13,5ø		8x13,5ø		8x17,5ø		8x22ø		8x22ø		8x26ø		8x26ø		8x33ø		8x33ø		8x39ø		8x45ø
FC <sub>ISO2</sub>		132		150		180		212		250		280		315		350		385		475		600
KK		M 27x2		M 33x2		M 42x2		M 48x2		M 64x3		M 72x3		M 80x3		M 90x3		M 100x3		M 125x4		M 160x4
NF		25		28		32		36		40		40		45		50		56		63		80
NV		27   30		32   36		41   46		50   60		65   75		75   85		85   95		95   110		110   120		140   160		180   200
PJ		120		133		155		171		205		219		235		264		278		325		350
RA		63		75		90		110		132		145		160		185		200		250		320
UC		155		175		210		250		290		325		360		405		440		540		675
VA		4		4		5		5		6		6		7		10		10		10		10
VD		4		4		4		5		5		5		5		5		5		8		8
VE		29		32		36		41		45		45		50		55		61		71		88
WF		47		53		60		68		76		76		85		95		101		113		136
Y		98		112		120		134		153		166		185		194		220		260		310
ZP		265		298		332		371		430		465		505		550		596		703		830



## MP3 Plain rear ISO 6022 clevis mounting

Nominal pressure **250 bar**

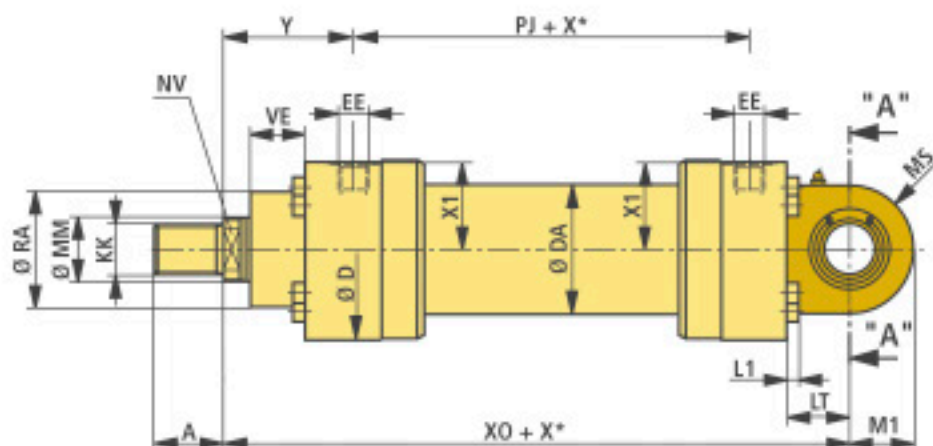
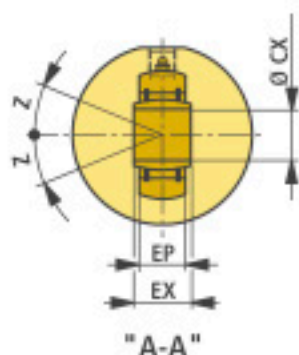


X\* : Stroke

Bore $\varnothing$	50		63		80		100		125		140		160		180		200		250		320		
	MM	32	36	40	45	50	56	63	70	80	90	90	100	100	110	110	125	125	140	160	180	200	220
A		36		45		56		63		85		90		95		105		112		125		160	
CD <sup>(1)</sup>		32		40		50		63		80		90		100		110		125		160		200	
D		102		120		145		170		206		226		265		292		306		412		500	
DA		65		78		100		120		150		170		190		210		230		298,5		385	
EE		1/2"G		3/4"G		3/4"G		1"G		1"G		1 1/4"G		1 1/4"G		1 1/4"G		1 1/4"G		1 1/2"G		2"G	
EP		27		32		40		52		66		72		84		88		102		130		162	
EW <sup>(1)(2)</sup>		32		40		50		63		80		90		100		110		125		160		200	
KK		M 27x2		M 33x2		M 42x2		M 48x2		M 64x3		M 72x3		M 80x3		M 90x3		M 100x3		M 125x4		M 160x4	
L		61		74		90		102		124		149		150		180		206		251		316	
MR		40		50		63		71		90		100		112		129		145		170		220	
NV		27	30	32	36	41	46	50	60	65	75	75	85	85	95	95	110	110	120	140	160	180	200
PJ		120		133		155		171		205		219		235		264		278		325		350	
RA		63		75		90		110		132		145		160		185		200		250		320	
VE		29		32		36		41		45		45		50		55		61		71		88	
WF		47		53		60		68		76		76		85		95		101		113		136	
XC		305		348		395		442		520		580		617		690		756		903		1080	
Y		98		112		120		134		153		166		185		194		220		260		310	

**MP5** Self-aligning rear  
ISO 6022 clevis mounting

Nominal pressure **250 bar**



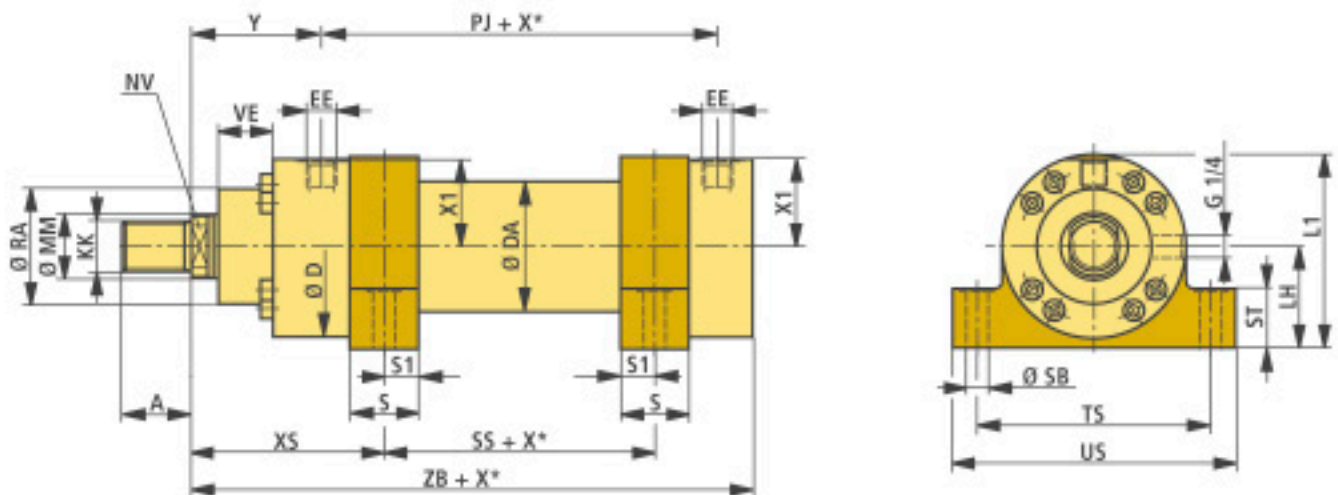
X\* : Stroke

Bore Ø	50		63		80		100		125		140		160		180		200		250		320		
	MM	32	36	40	45	50	56	63	70	80	90	90	100	100	110	125	125	140	160	180	200	220	
A		36		45		56		63		85		90		95		105		112		125		160	
CX		32 <sup>+0,025</sup>		40 <sup>+0,025</sup>		50 <sup>+0,025</sup>		63 <sup>+0,038</sup>		80 <sup>+0,030</sup>		90 <sup>+0,035</sup>		100 <sup>+0,035</sup>		110 <sup>+0,035</sup>		125 <sup>+0,040</sup>		160 <sup>+0,040</sup>		200 <sup>+0,046</sup>	
D		102		120		145		170		206		226		265		292		306		412		500	
DA		65		78		100		120		150		170		190		210		230		298,5		385	
EE		1/2"G		3/4"G		3/4"G		1"G		1"G		1 1/4"G		1 1/4"G		1 1/4"G		1 1/4"G		1 1/2"G		2"G	
EP		27		32		40		52		66		72		84		88		102		130		162	
EX		32 <sup>-0,25</sup>		40 <sup>-0,25</sup>		50 <sup>-0,25</sup>		63 <sup>-0,30</sup>		80 <sup>-0,30</sup>		90 <sup>-0,35</sup>		100 <sup>-0,35</sup>		110 <sup>-0,35</sup>		125 <sup>-0,40</sup>		160 <sup>-0,44</sup>		200 <sup>-0,46</sup>	
KK		M 27x2		M 33x2		M 42x2		M 48x2		M 64x3		M 72x3		M 80x3		M 90x3		M 100x3		M 125x4		M 160x4	
LT		61		74		90		102		124		149		150		180		206		251		316	
M5		40		50		63		71		90		100		112		129		145		170		220	
NV		27	30	32	36	41	46	50	60	65	75	75	85	85	95	95	110	110	120	140	160	180	200
PJ		120		133		155		171		205		219		235		264		278		325		350	
RA		63		75		90		110		132		145		160		185		200		250		320	
VE		29		32		36		41		45		45		50		55		61		71		88	
WF		47		53		60		68		76		76		85		95		101		113		136	
XO		305		348		395		442		520		580		617		690		756		903		1080	
Y		98		112		120		134		153		166		185		194		220		260		310	

## MS2 Foot mounting

ISO 6022

Nominal pressure **250 bar**

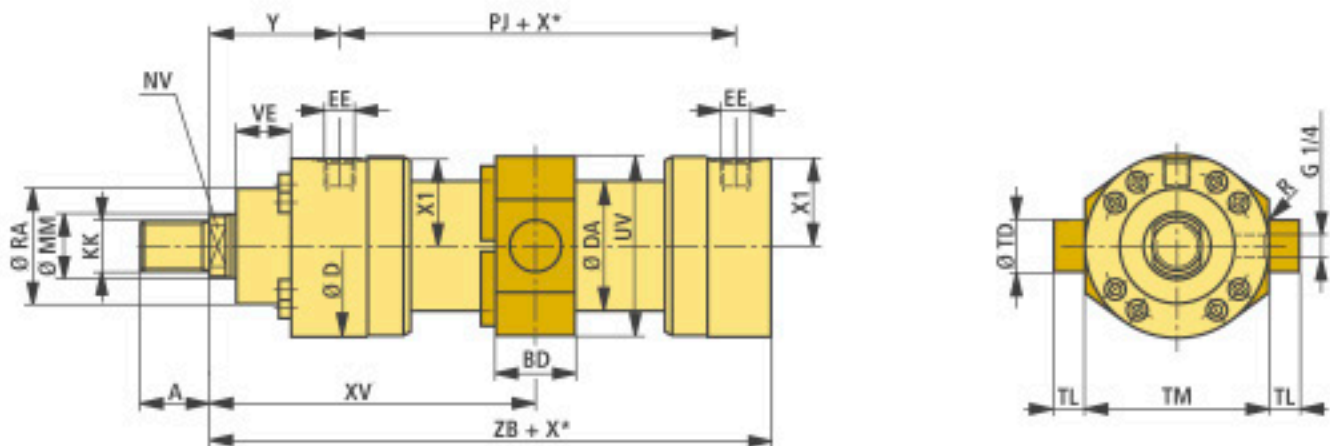


X\* : Stroke

Bore Ø	50		63		80		100		125		140		160		180		200		250		320	
	MM	32	36	40	45	50	56	63	70	80	90	90	100	100	110	110	125	125	140	160	180	200
A		36		45		56		63		85		90		95		105		112		125		160
D		102		120		145		170		206		226		265		292		306		412		500
DA		65		78		100		120		150		170		190		210		230		298,5		385
EE		1/2"G		3/4"G		3/4"G		1"G		1"G		1 1/4"G		1 1/4"G		1 1/4"G		1 1/4"G		1 1/2"G		2"G
KK		M 27x2		M 33x2		M 42x2		M 48x2		M 64x3		M 72x3		M 80x3		M 90x3		M 100x3		M 125x4		M 160x4
LH <sup>100</sup>		55		65		75		90		105		115		135		150		160		215		260
NV		27   30		32   36		41   46		50   60		65   75		75   85		85   95		95   110		110   120		140   160		180   200
PJ		120		133		155		171		205		219		235		264		278		325		350
S		35		40		50		60		70		85		105		115		125		100		120
SB <sup>111</sup>		11		13,5		17,5		22		26		30		33		40		40		52		62
SS		45		49		52		61		75		70		65		69		73		120		120
ST		37		42		47		57		67		72		77		92		97		112		152
RA		63		75		90		110		132		145		160		185		200		250		320
TS <sup>111</sup>		130		150		180		210		255		290		330		360		385		520		620
US		155		180		220		255		305		350		400		440		465		620		740
VE		29		32		36		41		45		45		50		55		61		71		88
WF		47		53		60		68		76		76		85		95		101		113		136
XS		135,5		154		171,5		189		218		240,5		270		291,5		322,5		360		425
Y		98		112		120		134		153		166		185		194		220		260		310
ZB		244		274		305		340		396		431		467		510		550		652		764
Min. Stroke		-		-		2		3		-		19		44		50		56		-		-

# MT4

Intermediate  
 ISO 6022 trunnion mounting

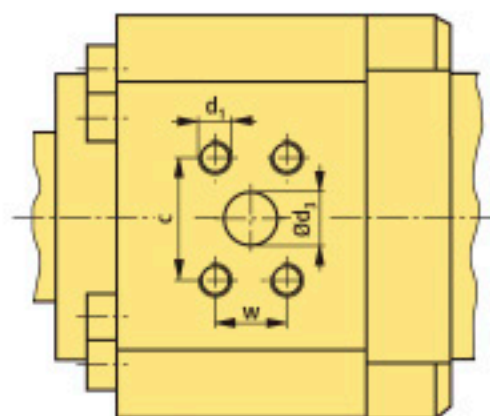
 Nominal pressure **250 bar**


X\* : Stroke

Bore Ø	50		63		80		100		125		140		160		180		200		250		320		
	MM	32	36	40	45	50	56	63	70	80	90	90	100	100	110	110	125	125	140	160	180	200	220
A		36		45		56		63		85		90		95		105		112		125		160	
BD		38		48		58		78		98		118		128		138		178		180		220	
D		102		120		145		170		206		226		265		292		306		412		500	
DA		65		78		100		120		150		170		190		210		244,5		298,5		385	
EE		1/2"G		3/4"G		3/4"G		1"G		1"G		1 1/4"G		1 1/4"G		1 1/4"G		1 1/4"G		1 1/2"G		2"G	
KK		M 27x2		M 33x2		M 42x2		M 48x2		M 64x3		M 72x3		M 80x3		M 90x3		M 100x3		M 125x4		M 160x4	
NV		27	30	32	36	41	46	50	60	65	75	75	85	85	95	95	110	110	120	140	160	180	200
PJ		120		133		155		171		205		219		235		264		278		325		350	
R		2		2,5		2,5		3		3		3		3,5		3,5		3,5		3,5		4	
RA		63		75		90		110		132		145		160		185		200		250		320	
TD <sub>h</sub>		32		40		50		63		80		90		100		110		125		160		200	
TL		25		32		40		50		63		70		80		90		100		125		160	
TM <sub>h1/2</sub>		112		125		150		180		224		265		280		320		335		425		530	
UM		162		189		230		280		350		405		440		500		535		675		850	
VE		29		32		36		41		45		45		50		55		61		71		88	
WF		47		53		60		68		76		76		85		95		101		113		136	
XV <sub>mm</sub>		174		202		226,5		259		301		336		373,5		405		461		520		625	
XV <sub>stroke</sub>		151		167		180,5		195		225		230		251,5		267		277		320		345	
Y		98		112		120		134		153		166		185		194		220		260		310	
ZB		244		274		305		340		396		431		467		510		550		652		764	
Min. Stroke		28		47		63		70		106		134		163		185		202		233		280	

Bore Ø	STANDARD	ON REQUEST (ADDITIONAL PRICE)								
	<b>G</b>	<b>M</b>	<b>S</b>	<b>N</b>	<b>U</b>	<b>V</b>	<b>W</b>	<b>X</b>	<b>Y</b>	<b>Z</b>
	BSP GAS ISO 228/1	METRIC	ISO/DIS 6162.2 (2,5-31,5 MPa)	NPT	UNF-2B	BSP GAS ISO 228/1	METRIC	ISO/DIS 6162.2 (2,5-31,5 MPa)	NPT	UNF-2B
50	1/2"	22x1,5	-	1/2"	3/4-16	3/4"	27x2	-	3/4"	1 1/16-12
63	3/4"	27x2	13	3/4"	1 1/16-12	1"	33x2	-	1"	1 5/16-12
80	3/4"	27x2	13	3/4"	1 1/16-12	1"	33x2	19	1"	1 5/16-12
100	1"	33x2	19	1"	1 5/16-12	1 1/4"	42x2	25	1 1/4"	1 5/8-12
125	1"	33x2	19	1"	1 5/16-12	1 1/4"	42x2	25	1 1/4"	1 5/8-12
140	1 1/4"	42x2	25	1 1/4"	1 5/8-12	1 1/2"	48x2	32	1 1/2"	1 7/8-12
160	1 1/4"	42x2	25	1 1/4"	1 5/8-12	1 1/2"	48x2	32	1 1/2"	1 7/8-12
180	1 1/4"	42x2	25	1 1/4"	1 5/8-12	1 1/2"	48x2	32	1 1/2"	1 7/8-12
200	1 1/4"	42x2	25	1 1/4"	1 5/8-12	1 1/2"	48x2	32	1 1/2"	1 7/8-12
250	1 1/2"	48x2	32	1 1/2"	1 7/8-12	2"	60x2	38	2"	2 1/2-12
320	2"	60x2	32	2"	2 1/2-12	-	-	38	-	-

ISO/DIS 6162.2 (2,5-31,5 MPa) - SAE 3000 (\*ISO/DIS 6162.2 (40 MPa) - SAE 6000)



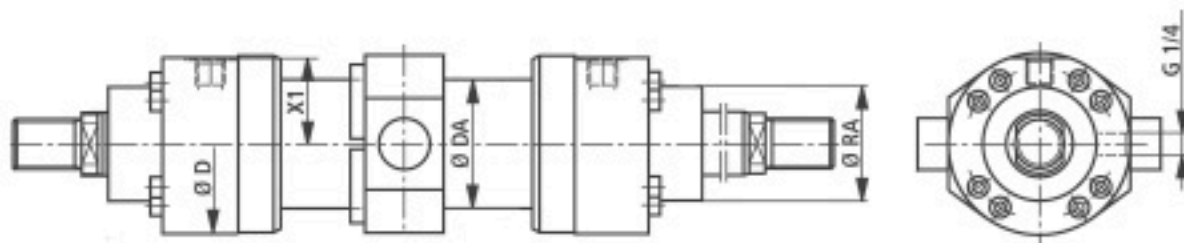
DN	$d_2 \begin{smallmatrix} 0 \\ -0,5 \end{smallmatrix}$	$c \begin{smallmatrix} +0,25 \\ 0 \end{smallmatrix}$	$w \begin{smallmatrix} +0,25 \\ 0 \end{smallmatrix}$	$D_1$
13	13	17,5	38,1	M8x1,25
19	19	22,3	47,6	M10x1,5
25	25	26,2	52,4	M10x1,5
32	32	30,2	58,7	M10x1,5
*38	38	36,5	79,3	M16x2

### Tolerances to ISO 8135

Installation dimensions	WC	XC <sup>1)</sup>	XO <sup>1)</sup>	XS	XV	ZP		
Mounting type	MF3	MP3	MP5	MS2	MT4	MF4		
Stroke	Tolerances						Stroke tolerances	
0 - 499	±2	±1,5	±1,5	±2	±2	±1,5	0	+3
500 - 1249	±2,8	±2	±2	±2,8	±2,8	±2	0	+4
1250 - 3149	±4	±3	±3	±4	±4	±3	0	+6
3150 - 8000	±8	±5	±5	±8	±8	±5	0	+10

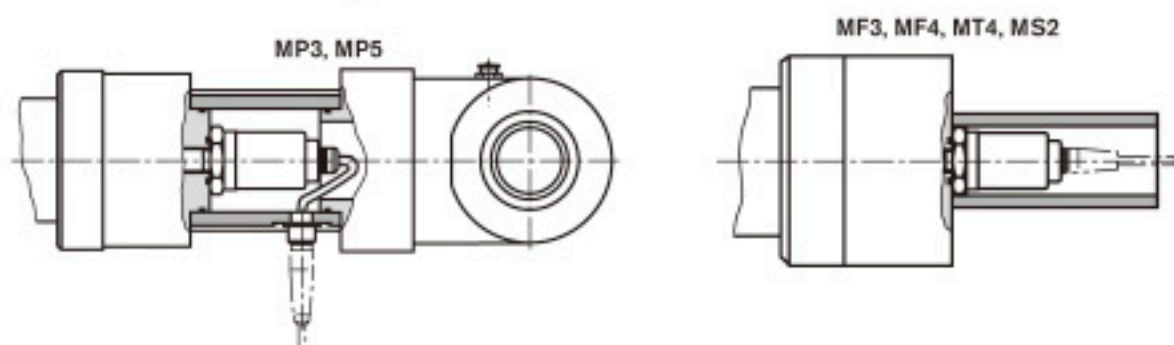
### Double Rod Cylinder

ISO 6022 series cylinders are available with the option of a double-ended piston rod. Please contact the factory for further details.



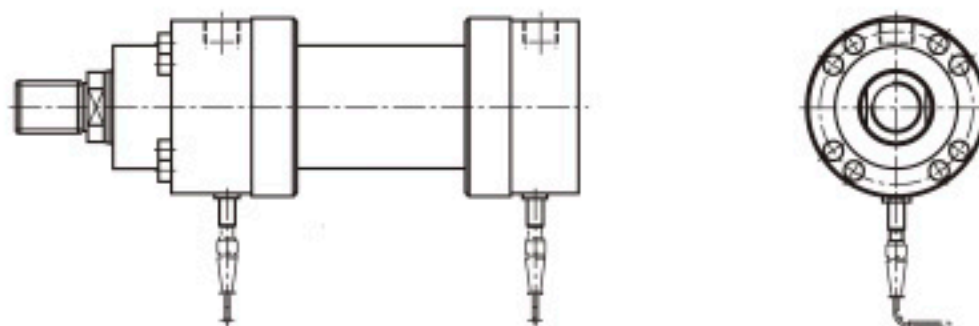
### Position Measure System

Linear position transducers of various types may be fitted to ISO 6022 series cylinders. Please contact the factory for further details.

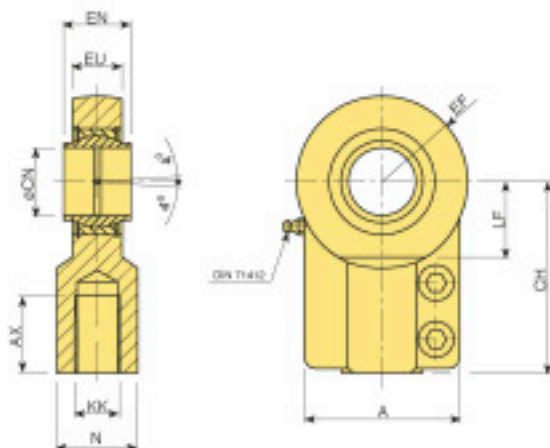


### Position Proximity Switch

Non-contacting position switches are available for ISO 6022 series cylinders. Please contact the factory for further details.



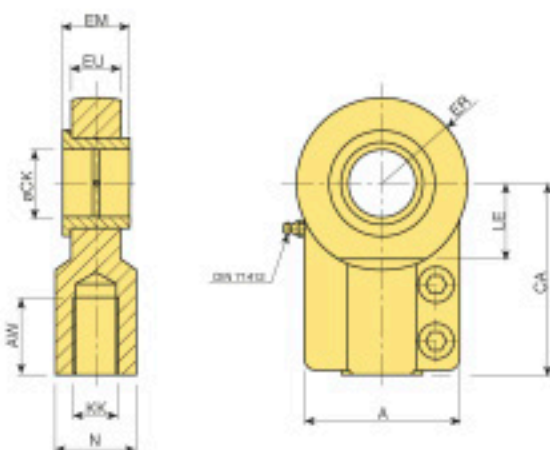
ISO 6982 CETOP RP 88 H DIN 24338



Rod end spherical eyes

Part No.	KK	A	AX	CH	CN <sub>H9</sub>	EF	EN <sub>n12</sub>	EU	LF	N
<b>RB BA012</b>	M12x1,25	32	17	38	12	16	12	10,6	14	16,5
<b>RB BA016</b>	M14x1,5	40	19	44	16	20	16	13	18	21
<b>RB BA020</b>	M16x1,5	47	23	52	20	25	20	17	22	25
<b>RB BA025</b>	M20x1,5	54	29	65	25	31	25	21	27	30
<b>RB BA032</b>	M27x2	66	37	80	32	38	32	27	32	38
<b>RB BA040</b>	M33x2	80	46	97	40	49	40	32	41	47
<b>RB BA050</b>	M42x2	96	57	120	50	59	50	40	50	58
<b>RB BA063</b>	M48x2	114	64	140	63	71	63	52	62	70
<b>RB BA080</b>	M64x3	148	86	180	80	90	80	66	78	90
<b>RB BA100</b>	M80x3	178	96	210	100	112	100	84	98	110
<b>RB BA125</b>	M100x3	200	113	260	125	145	125	102	120	135
<b>RB BA160</b>	M125x4	250	126	310	160	178	160	130	150	165
<b>RB BA200</b>	M160x4	320	161	390	200	230	200	162	195	215

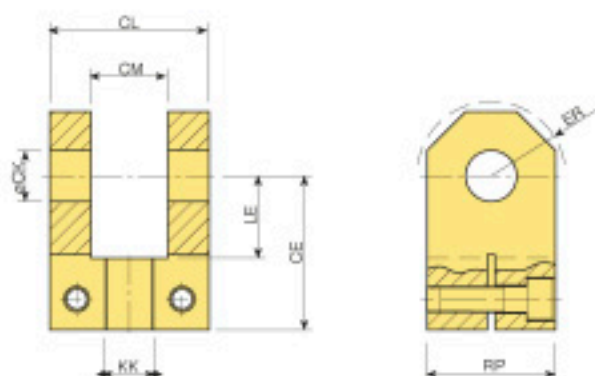
ISO 6981 CETOP RP 87 H DIN 24337



Rod end plain eyes

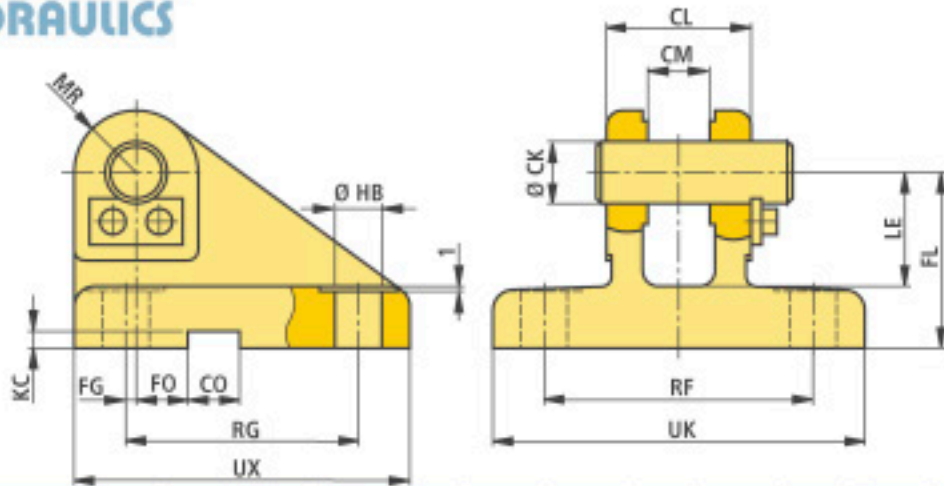
Part No.	KK	A	AW	CA	CK <sub>H9</sub>	EM <sub>n12</sub>	ER	EU	LE	N
<b>RE BA012</b>	M12x1,25	32	17	38	12	12	16	10,6	14	16,5
<b>RE BA016</b>	M14x1,5	40	19	44	16	16	20	13	18	21
<b>RE BA020</b>	M16x1,5	47	23	52	20	20	25	17	22	25
<b>RE BA025</b>	M20x1,5	54	29	65	25	25	31	21	27	30
<b>RE BA032</b>	M27x2	66	37	80	32	32	38	27	32	38
<b>RE BA040</b>	M33x2	80	46	97	40	40	49	32	41	47
<b>RE BA050</b>	M42x2	96	57	120	50	50	59	40	50	58
<b>RE BA063</b>	M48x2	114	64	140	63	63	71	52	62	70
<b>RE BA080</b>	M64x3	148	86	180	80	80	90	66	78	90
<b>RE BA100</b>	M80x3	178	96	210	100	100	112	84	98	110
<b>RE BA125</b>	M100x3	200	113	260	125	125	145	102	120	135
<b>RE BA160</b>	M125x4	250	126	310	160	160	178	130	150	165
<b>RF BA200</b>	M160x4	320	161	390	200	200	230	162	195	215

ISO 8132



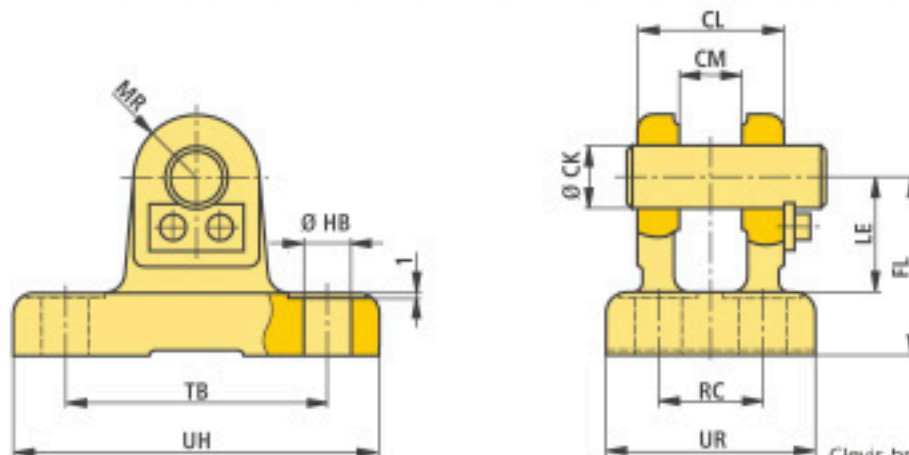
Rod clevis

Part No.	KK	CE <sub>js12</sub>	CK <sub>H9</sub>	CL <sub>n12</sub>	CM <sub>A12</sub>	ER	LE	RP
<b>RC BA012</b>	M12x1,25	38	12	28	12	16	18	25
<b>RC BA016</b>	M14x1,5	44	16	36	16	20	22	30
<b>RC BA020</b>	M16x1,5	52	20	45	20	25	27	40
<b>RC BA025</b>	M20x1,5	65	25	56	25	32	34	50
<b>RC BA032</b>	M27x2	80	32	70	32	40	42	65
<b>RC BA040</b>	M33x2	97	40	90	40	50	52	80
<b>RC BA050</b>	M42x2	120	50	110	50	63	64	100
<b>RC BA063</b>	M48x2	140	63	140	63	71	75	140
<b>RC BA080</b>	M64x3	180	80	170	80	90	94	180



Clevis bracket, form A

Port No.	CK <sub>H9</sub>	CL <sub>h16</sub>	CM <sub>A12</sub>	CO <sub>N9</sub>	FG <sub>js14</sub>	FL <sub>js12</sub>	FO <sub>js14</sub>	HB <sub>H13</sub>	KC <sub>-0,3/0</sub>	LE	MR	RF <sub>js14</sub>	RG <sub>js14</sub>	UK	UX
RM BR12	12	28	12	10	2	34	10	9	3,3	22	12	52	45	72	65
RM BR16	16	36	16	16	3,5	40	10	11	4,3	27	16	65	55	90	80
RM BR20	20	45	20	16	7,5	45	10	11	4,3	30	20	75	70	100	95
RM BR25	25	56	25	25	10	55	10	13,5	5,4	37	25	90	85	120	115
RM BR32	32	70	32	25	14,5	65	6	17,5	5,4	43	32	110	110	145	145
RM BR40	40	90	40	36	17,5	76	6	22	8,4	52	40	140	125	185	170
RM BR50	50	110	50	36	25	95	0	26	8,4	65	50	165	150	215	200
RM BR63	63	140	63	50	33	112	0	33	11,4	75	63	210	170	270	230
RM BR80	80	170	80	50	45	140	0	39	11,4	95	80	250	210	320	280

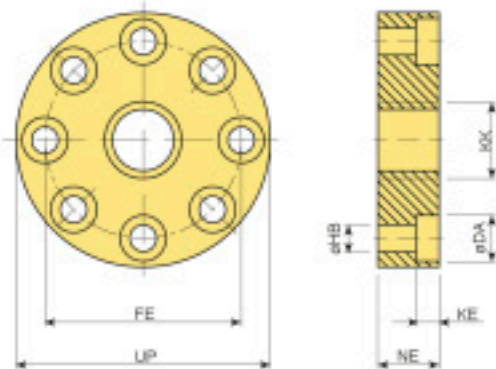


Clevis bracket, form B

Port No.	CK <sub>H9</sub>	CL <sub>h16</sub>	CM <sub>A12</sub>	FL <sub>js12</sub>	HB <sub>H13</sub>	LE	MR	RC <sub>js14</sub>	TB <sub>js14</sub>	UR	UH
RN BR12	12	28	12	34	9	22	12	25	55	55	85
RN BR16	16	36	16	40	11	27	16	32	65	60	105
RN BR20	20	45	20	45	11	30	20	40	85	70	113
RN BR25	25	56	25	55	13,5	37	25	50	110	85	143
RN BR32	32	70	32	65	17,5	43	32	65	130	108	170
RN BR40	40	90	40	76	22	52	40	80	170	130	220
RN BR50	50	110	50	95	26	65	50	100	210	160	270
RN BR63	63	140	63	112	33	75	63	125	250	210	320
RN BR80	80	170	80	140	39	95	80	140	290	230	370



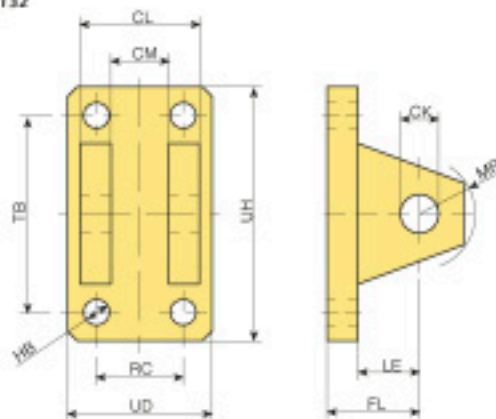
ISO 8132



Rod flanges

Part No.	KK	DA H13	FE J13	HB H13	KE +0.4 -0.5	NE H13	UP
RF BK12	M12x1,25	11	40	4x Ø6,6	6,8	17	56
RF BK14	M14x1,5	14,5	45	4x Ø9	9	19	63
RF BK16	M16x1,5	14,5	54	6x Ø9	9	23	72
RF BK20	M20x1,5	14,5	63	6x Ø9	9	29	82
RF BK27	M27x2	17,5	78	6x Ø11	11	37	100
RF BK33	M33x2	20	95	8x Ø13,5	13	46	120
RF BK42	M42x2	26	120	8x Ø17,5	17,5	57	150
RF BK48	M48x2	33	150	8x Ø22	21,5	64	190
RF BK64	M64x3	39	180	8x Ø26	25,5	86	230

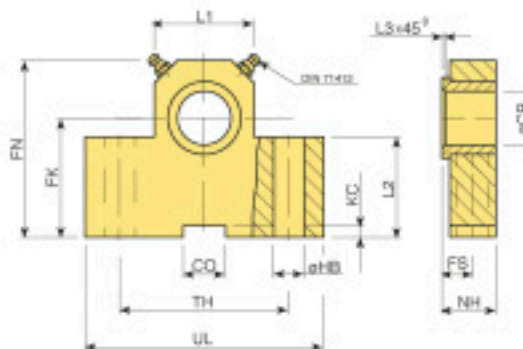
ISO 8132



Clevis bracket, form A

Part No.	CK H9	CL H16	CM A12	FL J12	HB H13	LE	MR	RC J14	TB J14	UD	UH
RL BA012	12	28	12	34	9	22	12	20	50	40	70
RL BA016	16	36	16	40	11	27	16	26	65	50	90
RL BA020	20	45	20	45	11	30	20	32	75	58	98
RL BA025	25	56	25	55	13,5	37	25	40	85	70	113
RL BA032	32	70	32	65	17,5	43	32	50	110	85	143
RL BA040	40	90	40	76	22	52	40	65	130	108	170
RL BA050	50	110	50	95	26	65	50	80	170	130	220
RL BA063	63	140	63	112	33	75	63	100	210	160	270
RL BA080	80	170	80	140	39	95	80	125	250	210	320

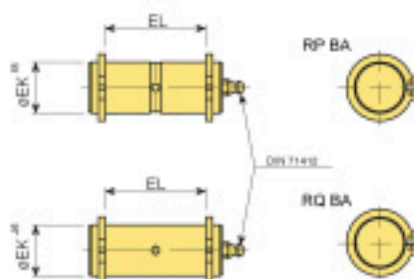
ISO 8132



Turnion bracket

Part No.	CR H7	CO N9	FK J12	FN	FS J14	HB H13	KC +0.3 -0.1	L1	L2	L3	NH J14	UL
RT BA012	12	10	34	50	8	9	3,3	25	25	1	17	40
RT BA016	16	16	40	60	10	11	4,3	30	30	1	21	50
RT BA020	20	16	45	70	10	11	4,3	40	38	1,5	21	60
RT BA025	25	25	55	80	12	13,5	5,4	56	45	1,5	26	80
RT BA032	32	25	65	100	15	17,5	5,4	70	52	2	33	110
RT BA040	40	36	76	120	16	22	8,4	88	60	2,5	41	125
RT BA050	50	36	95	140	20	26	8,4	100	75	2,5	51	160
RT BA063	63	50	112	180	25	33	11,4	130	85	3	61	200
RT BA080	80	50	140	220	31	39	11,4	160	112	3	81	250

ISO 8132



Part No.	EK H8	EL H16
RP BA012	12	29
RP BA016	16	37
RP BA020	20	46
RP BA025	25	57
RP BA032	32	72
RP BA040	40	92
RP BA050	50	112
RP BA063	63	142
RP BA080	80	172

Part No.	EK J6	EL H16
RQ BA012	12	29
RQ BA016	16	37
RQ BA020	20	46
RQ BA025	25	57
RQ BA032	32	72
RQ BA040	40	92
RQ BA050	50	112
RQ BA063	63	142
RQ BA080	80	172



Long Stroke Cylinder



Rotary Cylinder



Ceramic Cylinder



AGC Cylinder



Large Cylinder



ISO Mill Type Cylinder

We design and manufacture top quality hydraulic cylinders.

With **BRANT**, you have more competitiveness.



Servo Cylinder



Damper



Cylinder with Linear Transducer



Swivel Cylinder



JOHS 110 Mill Type Cylinder



Press Cylinder



Custom Design Cylinder



**BRANT HYDRAULICS CORPORATION**

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